FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

4th QTR "08"

Yes DMR

M03417, F&BI 812096
lyzed: 12/10/08

M THE ANALYSIS OF WATER SAMPLES FOR pH USING EPA METHOD 9040C

	pH
	7.39

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/26/08
Date Received: 12/09/08
Project: Stormwater, PO M03417, F&BI 812096
Date ExtractedDate Analyzed: 12/10/08

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR pH USING EPA METHOD 9040C

Sample ID Laboratory ID	pH
M03417D 812096-04	7.39

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/26/08
Date Received: 12/09/08
Project: Stormwater, PO M03417, F&BI 812096
Date Analyzed: 12/10/08

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TURBIDITY USING METHOD SM2130B

Results Reported as NTU

Sample ID Laboratory ID	Date Sampled	Time Sampled	Turbidity
M03417D 812096-04	12/09/08	1330	42.5
Method Blank			<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	M03417A	Client:	Alaskan Copper Works
Date Received:	12/09/08	Project:	Stormwater, PO M03417, F&BI 812096
Date Extracted:	12/10/08	Lab ID:	812096-01 x10
Date Analyzed:	12/11/08	Data File:	812096-01 x10.036
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	hr

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	112	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	29.0
Nickel	192
Copper	696
Zinc	1,300

Date of Report: 12/26/08
Date Received: 12/09/08
Project: Stormwater, PO M03417, F&BI 812096

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR pH BY METHOD 9040C

Laboratory Code: 812096-04 (Duplicate)

Analyte	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
pH	7.39	7.47	1	0-20

Date of Report: 12/26/08
Date Received: 12/09/08
Project: Stormwater, PO M03417, F&BI 812096

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TURBIDITY USING METHOD SM2130B

Laboratory Code: 812096-04 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Turbidity	NTU	42.5	41.1	3	0-20

Date of Report: 12/26/08
Date Received: 12/09/08
Project: Stormwater, PO M03417, F&BI 812096

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 812077-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Chromium	ug/L (ppb)	1.55	1.53	1	0-20
Nickel	ug/L (ppb)	6.39	6.60	3	0-20
Copper	ug/L (ppb)	241	250	4	0-20
Zinc	ug/L (ppb)	845	863	2	0-20
Lead	ug/L (ppb)	2.88	3.01	4	0-20

Laboratory Code: 812077-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Chromium	ug/L (ppb)	20	1.55	98	50-150
Nickel	ug/L (ppb)	20	6.39	91 b	50-150
Copper	ug/L (ppb)	20	241	129 b	50-150
Zinc	ug/L (ppb)	50	845	142 b	50-150
Lead	ug/L (ppb)	10	2.88	97 b	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chromium	ug/L (ppb)	20	102	70-130
Nickel	ug/L (ppb)	20	98	70-130
Copper	ug/L (ppb)	20	96	70-130
Zinc	ug/L (ppb)	50	88	70-130
Lead	ug/L (ppb)	10	99	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probablility.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - The analyte indicated was found in the method blank. The result should be considered an estimate.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - The sample was extracted outside of holding time. Results should be considered estimates.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - The value reported exceeded the calibration range established for the analyte. The reported concentration should be considered an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The pattern of peaks present is not indicative of diesel.

y - The pattern of peaks present is not indicative of motor oil.

812096

SAMPLE CHAIN OF CUSTODY

ME 12/9/08 AIG.

Send Report To Gerry Thompson

Company Alaskan Copper Works

Address 628 South Hanford

City, State, ZIP Seattle, WA 98134

Phone # 382-8379 Fax # 382-4309

SAMPLERS (signature)

PROJECT NAME/NO. STORM WATER

PO # MO3417

REMARKS

Page # ____ of ____

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☐ RUSH ____
- Rush charges authorized by: ____

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	Total Cr, Cu, Ni, Zn by 6010	Oil and Grease by 1664 (no silica)	Hardness by SM2340B	Total Lead by 6020	Total Cu, Zn by 6010	pH by 9040A	Turbidity by SM241A					Notes
MO3417A	01	12/9/08	1:30	H_2O	1	X											
MO3417B	02	12/9/08	1:30	H_2O	1			X	X								
MO3417C	03	12/9/08	1:30	H_2O	1					X							
MO3417D	04	12/9/08	1:30	H_2O	1						X	X	-				

ANALYSES REQUESTED

Samples received at 8 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Gerard Thompson	ACW	12/9/08	2:27pm
Received by:		Nhan Nhan	FEBT	12/9/08	V
Relinquished by:					
Received by:					

Samples r[illegible] °C

FBI0406:FBI00340

RECEIVED
JAN 0 8 2009

AQUATIC RESEARCH INCORPORATED

LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER:	**FBI003-40**	**PAGE 1**	
REPORT DATE:	**12/23/08**		
DATE SAMPLED:	**12/09/08**	**DATE RECEIVED:**	**12/10/08**

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM FRIEDMAN & BRUYA, INC. / PROJECT NO. 812096

CASE NARRATIVE

Two water samples were received by the laboratory in good condition. Analysis was performed according to the chain of custody received with the samples. No difficulties were encountered in the preparation or analysis of these samples. Sample data follows while QA/QC data is contained on the following page.

SAMPLE DATA

SAMPLE ID	FOG (mg/l)	HARDNESS (mgCaCO3/l)
M03417B		103
M03417A	30.0	

AQUATIC RESEARCH INCORPORATED

LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER:	**FBI003-40**	**PAGE 2**	
REPORT DATE:	**12/23/08**		
DATE SAMPLED:	**12/09/08**	**DATE RECEIVED:**	**12/10/08**

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM FRIEDMAN & BRUYA, INC. / PROJECT NO. 812096

QA/QC DATA

QC PARAMETER	FOG (mg/l)	HARDNESS (mgCaCO3/l)
METHOD	EPA 1664	EPA 130.2
DATE ANALYZED	12/18/08	12/23/08
DETECTION LIMIT	2.00	2.00
DUPLICATE		
SAMPLE ID		BATCH
ORIGINAL		41.8
DUPLICATE		41.2
RPD	NA	1.41%
SPIKE SAMPLE		
SAMPLE ID		BATCH
ORIGINAL		41.8
SPIKED SAMPLE		61.0
SPIKE ADDED		20.0
% RECOVERY	NA	95.77%
QC CHECK		
FOUND	7.40	39.1
TRUE	8.00	40.0
% RECOVERY	92.50%	97.72%
BLANK	<2.00	<2.00

RPD = RELATIVE PERCENT DIFFERENCE.
NA = NOT APPLICABLE OR NOT AVAILABLE.
NC = NOT CALCULABLE DUE TO ONE OR MORE VALUES BEING BELOW THE DETECTION LIMIT.
OR = RECOVERY NOT CALCULABLE DUE TO SPIKE SAMPLE OUT OF RANGE OR SPIKE TO LOW RELATIVE TOO SAMPLE CONCENTRATION.

SUBMITTED BY:

Steven Lazoff
Laboratory Director

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

Page # 1 of 1

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 Fax # (206) 283-5044

SUBCONTRACTER Ag. Res

PROJECT NAME/NO. 812096

PO # H-1667

REMARKS

Please Email Results
merdahl@friedmanandbruya.com

TURNAROUND TIME
☒ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: Oil and Grease	EPH	VPH	Nitrate	Sulfate	Alkalinity	Hardness				Notes
M03417B		12/9/08	1:30	W	1							X				
M03417A		"	"	W	1	X										

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Michael Erdahl	Friedman & Bruya	12/9/08	3:45
Received by:	S. NIELSON	ARA	12/10/08	1500
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

ALASKAN COPPER WORKS
RECORD OF VISUAL MONITORING

Completed By * Gerald Thompson
Title Environmental Asst.
Date Dec. 9th 2008
*Must be completed by qualified person identified in the SWPPP

List observed pollutants in all discharges and carefully consider the pollutant sources and action steps needed to control the pollutants

Date	Surface Discharge ID	Ground Discharge ID	List of observed pollutants and descriptions of intensities of each. Include floatables, oil sheen, discolorization, turbidity, odor, etc. in the SW	Recommended Action Steps
12/9/08			No Noticable Odor	Site: CB331707
			No Floatables	
			Water Slightly Gray	M-03417
			Slight oil Residue	
			Rainfall Greater than	
			2/10th of an Inch	

Name Gerald Thompson Title Enviro. Asst Signature [signature] Date Signed 12/9/08